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ABSTRACT OF MECHANICAL AIDS TO QUANTIFICATION OF INTERPERSONAL BEHAVIOR (STUDENT TEACHERS AND PUPILS). APPENDIX C.

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THE EQUIPMENT AND METHODS USED TO OBTAIN AND PROJECT 8 MM SOUND FILMS OF SPONTANEOUS, NONSIMULATED SAMPLES OF INTERACTIONS BETWEEN STUDENT TEACHERS AND PUPILS WERE DESCRIBED. THE SPECIAL EQUIPMENT TO BE USED BY OBSERVERS WHILE JUDGING AND RATING THE INTERACTIONS RECORDED IN THE FILMS IS ALSO DESCRIBED. FILMS WERE MADE OF 15-MINUTE LESSONS PRESENTED IN ACTUAL CLASSROOM SITUATIONS BY UNIVERSITY STUDENTS BETWEEN THE AGES OF 20 AND 25 TO CLASSES OF YOUNG CHILDREN FROM 6 TO 13 YEARS OLD. THE FILMS WERE OBTAINED TO DETERMINE WHETHER OR NOT FORMAL INSTRUCTION IN TEACHER TRAINING INSTITUTIONS IS ADEQUATELY RELATED TO THE PROBLEMS LATER FACED IN THE ACTUAL TEACHING SITUATION. THE PRIMARY PURPOSE OF THE FILMING TECHNIQUE IS TO PROVIDE BETTER FEEDBACK TO STUDENT TEACHERS. THE AUTHOR SUGGESTS THAT FILMS OF THIS KIND COULD BE OF VALUE IN COMPUTER-ASSISTED INSTRUCTION AND FOR USE IN PLACE OF A REAL CLASS OR SUBJECT TO PROVIDE A MEANS FOR STUDENT PRACTICE. RELATED REPORTS ARE AA 000 026 THROUGH AA 000 031. (AL)

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APPENDIX C

[Abstract of

Mechanical Aids to Quantification of Interpersonal Behavior (Student Teachers and Pupils). APPENDIX C

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Summary:

Spontaneous, non-simulated samples of human interaction between student teachers and pupils which are susceptible to reliable measurement over time, have been obtained since 1963 relatively inexpensively, when 8 millimeter film, pre-striped for sound, was used with standard procedures and simple supplementary mechanical equipment.

Introduction:

At the 1963 meeting of the Soviet Psychological Society, the Division of Educational Psychology held sessions focusing on the following problems, among others, falling within its purview:

(a) Relationships between training offered in schools and occupational work.

(b) Relationships between education and life, between theoretical knowledge and practical skills....(Brozek, 1964).

In 1964, a Panel of the United States President's Science Advisory Committee (PSAC) published its progress report on Educational Research and Development in the U.S. entitled "Innovation and Experiment in Education." One of its two major recommendations called for sweeping

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reforms in teacher education. The basic flaw in teacher education was said to be the fact that formal instruction in teacher training institutions is inadequately related to problems that the teacher actually faces when she is teaching in school. (Walsh, 1964)

This concern with teacher training deficiencies in the U.S. may be regarded as a special case of the more generalized concern of Soviet Educational Psychologists. Both nations seemingly share this concern. The work underway at the College of Education, University of Texas to narrow the gap between theory and practice in teacher training is believed therefore to be of interest to psychologists of both East and West. Further, our work concentrates on the use of films in "moving teacher education nearer to the realities of teaching" (Walsh, 1964 p. 939s). For example, greater utilization of films in teacher training was a specific suggestion of the PSAC panel. In this paper emphasis will be given to the technical contributions made by our project personnel in the recording and quantification of the teacher - pupil interaction. There will also be brief mention of the more important uses of filming of prospective and experienced teachers in actual classroom situations.

Equipment: (See Appendices A, B, C)

(1) Camera and Accessories:

Appendix A provides a brief description of the Camera and Accessories used in the project. Herein is described also the rheostat modification of the 8 mm projector which enables the operator to run the projector at the same speed as the sound was recorded.

(2) Four Judge Station Conveyor Belt Motor:

Human observers in effect categorize each three-second period of filmed sequence with the aid of a conveyor belt which moves calibrated rating tapes at a fixed rate under small slots directly in front of each judge. After memorizing the applicable category system or rating scale, judges who have been trained to criterion in practice films, write category symbols on moving tape only when categories change. Tactile cues provided around the slots enabled judges to record category symbols while looking continuously at films.

In Appendix B will be the specifications of the Conveyor Belt Motor, a diagram of the equipment and a photograph of judges using the equipment.

(3) Calibrated Rating Tapes:

Continuous rolls of paper of the type used in adding machines are printed with lines so that one line space will pass the judge's slot each three seconds. Judges thus need only to record category changes since three second intervals left blank can then be assumed to repeat the last reported category. Appendix C contains examples of the tape prior and subsequent to use by judges.

Procedures: (Appendices D through G)

Filming Subjects:

Since filming subjects without their knowledge is contrary to the Code of Ethics of the American Psychological Association, spontaneity is best secured when general permission can be obtained in advance and subjects have general knowledge of observation but are not immediately aware of cameras or observation at the time of filming. When, because of noise of the camera or difficulty in making equipment unobtrusive, it

was not possible to film without subjects' awareness, a desensitization procedure was used. Prospective subjects were filmed in a group under circumstances in which they laughed in response to jokes, etc., and then were shown the film of themselves laughing. The performance of this anxiety-reducing response in the presence of the anxiety-arousing stimulus, the camera, tended to reduce anxiety and increase spontaneity.

The subjects filmed were University students between the ages of 20 and 25 who were studying to become public school teachers, and classes of young children between the ages of 6 and 13. In "Instructions to Subjects" the research purposes of the filming were emphasized and subjects were neither rewarded nor punished for participation in filming. More details regarding procedures will be found in the following listed Appendices:

Appendix D: Recording Small Groups

Appendix E: Evaluation of Initial Color Films.

Appendix F: Photographing Student Teachers and Elementary Pupils in Classrooms.

Appendix G: Processing and Editing.

Equipment in Developmental Stage: (Appendices H through M)

Among the items of equipment currently in process of development but not yet in use are the following:

(a) Keyboard for punching category symbols. (See Appendix H)

(b) Keyboard for punching symbols directly on computer (IBM) cards. (See Appendix J)

(c) Equipment to make accurate measurements of physical changes in subjects, e.g., size of pupil of the eye as a measure of interest in the perceived object; movements of the mouth, eyebrows, etc., accompanying verifiable subjective experiencing.

(d) Automatic word counting equipment. (See Appendix K)

(e) Acoustical equipment: Voice inflection from tape recordings. (See Appendix L)

(f) Synchronization of two or more cameras. (See Appendix M)

Prospective Uses of Findings of Films:

A wide variety of uses are envisaged among which the following have already been achieved or are close to realization:

Feedback:

This is the primary purpose of the Filming Technique, to close the gap between speculation and the reality of teaching. Fuller and Veldman (1963) have shown that when the subjects have listened to tape recordings their performance in the presence of their supervisors for the purpose of helping them perceive their performance more realistically, the discrepancy between their perceptions of their own performance and the average of the ratings of a group of peers was reduced.

Other Uses:

(a) Instruction other than Teacher Education:

Computer-assisted instruction can simulate the criterion situation more closely when the computer presents filmed or even tape recorded sequences instead of print-outs. For example, interviewers in training can conduct practice interviews when the computer assumes the role of the interviewee and sufficient branching is available, and the computer can present on a screen sequences defined in terms of previous judgments. Teachers, for example, can practice teaching before filmed classes and psychotherapists can practice with a programmed film in place of a real patient.

(b) Placement:

Preanalyzed films may be used in matching workers to jobs, e.g. 15 minute filmed teaching sequences can be described in one page of symbols which can be mathematically summarized and 10 to 15 such summaries compared at a glance while first hand viewing of this many performances would require days, and even viewing the films represented by the coding would require hours of viewing without yielding the same comparability of data.

(c) Research:

Data obtained from such films is useful either as criteria for outcome research or to specify treatment when method comparison is of interest.

Films are also of use in determining the limits of an individual's ability to change his own behavior. It has been found, for example, that some individuals seem unable to change their spontaneous responses to other individuals. For example, teachers who try to divide their time more evenly among many children have been found to spend more time with all children but still continue to spend a proportionately larger amount of time with the same individual children as before. Through this means it may be possible to determine which kinds of behaviors are determined preconsciously and which are subject to conscious control.